AGING AND MOBILITY: CURRENT ISSUES

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Introduction

This is a version of an article prepared for the University of California Berkeley Traffic Safety Center Newsletter. The article frames current issues related to traffic safety, mobility, and aging, examines factors that influence transportation options and use, and discusses efforts and strategies for enhancing safe mobility for seniors. It is based on lectures and interviews given in "Advances in Aging, Mobility, and Transportation Safety," a multidisciplinary course at the University of California at Berkeley (UCB) that was offered by the UCB Traffic Safety Center and the Academic Geriatric Resource Program in Spring 2001. The course was host to a number of guest lectures by recognized experts in the transportation and traffic safety fields, including John Eberhard, Leonard Evans, Sandra Rosenbloom, Martin Wachs, and Patricia Waller.

Background

Transportation and mobility are closely linked to independence, well being, and quality of life. With the graying of the population, the need to enhance the mobility of older adults without compromising safety has become a major priority. The 65+ age group is increasing in the United States both absolutely and relatively, creating a "squaring of the population pyramid" as adults live longer and have fewer children. This age group is seen as the fastest growing segment of the population, and by the middle of the next century, it is predicted that 83 million Americans will be age 65 or older.

As Patricia Waller, former Director of the University of Michigan Transportation Research Institute and former Director of the University of North Carolina Injury Prevention Research Center, noted in her article "The Older Driver" (*Human Factors*, October 1991), this age group has also been the fastest growing segment of the driving population. The automobile is by far the primary mode of transportation among adults 65 and older, used for approximately 90% of trips, according to Martin Wachs, Director of the Institute of Transportation Studies at the University of California at Berkeley. Older adults are also traveling more: since 1983, their daily auto travel has increased nearly 100% in miles traveled per driver.

The increase in older drivers has been partly attributed to a growing number of women on the road. According to Wachs, "Up until 20 or 30 years ago, it was quite common for men to drive and women not to. With women outliving men, when they lost their mate, women also lost their mobility." Now women are as likely to be driving as men, and may even outnumber male drivers in future years.

According to Leonard Evans, former Research Scientist at General Motors and author of *Traffic Safety and the Driver*, two distinct issues are raised by the growing presence of

the older driver: the risks faced and the risks posed by the older driver. The experts agree that older drivers are generally safe and responsible as a group. They tend to self-regulate to avoid hazardous driving conditions and situations, such as nighttime driving or congested routes, and have the highest seatbelt use among all road users, according to John Eberhard, Senior Research Psychologist for the National Highway Traffic Safety Administration (NHTSA). And older adults pose far less risk on the road than younger drivers do: as Evans pointed out, a 70-year-old driver is less likely to cause or die from a driving-related fatality than a 20-year-old driver is.

Nonetheless, drivers begin experiencing "genuine problems of performance" as they age, according to Evans. They are "not out thrill-seeking or doing foolish things. They are experiencing problems of information processing" and changing functional ability. Crash risk per mile driven begins to rise as drivers reach their mid-fifties, increasing dramatically around the ages of 65-70.

Crash-related fatalities also rise, probably due to higher rates of crash exposure and the fact that with increasing age, the extent of any given injury increases. As Eberhard stated, "Though all other age groups have seen a decline in fatalities per 100,000 population over the last 20 years, the numbers for the older population are increasing." Around age 70, driver fatalities per capita and driver fatalities per distance traveled begin significantly increasing; however, traffic-related deaths as a percentage of all deaths also decrease with increasing age.

Driving alternatives?

Data show that older adults tend to have low rates of use of other modes of transportation, such as public transit, paratransit, walking, and bicycling. These options are perceived to be less convenient, available, feasible, or safe, and do indeed come with a different set of risks.

Per exposure, older adults experience higher rates of injury and/or crime as pedestrians and users of public transit. According to Wachs, "Elderly people are more likely to be victimized than people of other age groups" when using public transportation. And Eberhard stated, "People who stop driving actually show an increase in overall road fatalities because they're much more likely to be killed as pedestrians than they are when protected by 4,000 pounds of structure."

In addition, driving may be favored simply because other transportation options may not exist. Older adults tend to live in suburban communities that are low-density and auto-dependent, often lacking sidewalks or public transportation systems. According to Eberhard, "As people get into these far-flung suburbs and rural areas, there's frequently no transportation other than the private automobile. And to provide services in those communities is really, really costly and may not be practical."

Relationship of mobility to health and well being When examining aging and transportation, traffic safety researchers often focus on how health affects mobility or

driving ability. According to Waller, "We have given less attention to the fact that mobility affects health and well being." Access to safe transportation in older age is closely tied to quality of life, connecting people with activities, recreation, and opportunities for social contact. More than disease or injury, "the strongest predictor of premature death among the elderly is social isolation," said Waller.

For older adults, being able to drive is often tied to a sense of independence, self-sufficiency, youthfulness, or ability. In focus groups conducted with older adults, Eberhard found that responses such as "if you don't drive, you're out of luck" characterized how important driving often is to seniors. In addition, being able to drive into older age can place less burden on family members and friends otherwise relied upon to provide transportation.

Despite the known risks, driving may still be the safest and best transportation option for many older adults. Sandra Rosenbloom, Professor of Planning at the University of Arizona and Director of the Roy P. Drachman Institute for Land and Regional Development Studies, stated that by driving into old age, older adults "are saying in some sense, 'I'd rather take the increased risk of the car crash than sit in my home for three weeks without getting out. I'd rather take the risk of a car crash than calling up my daughter yet again and asking her to bring me groceries or take me to the store. I'd rather take the risk of the crash than not seeing my friends or not going to church.' That's what they're implicitly doing, and that's rational."

Dramatic lifestyle changes can occur for people who lose their licenses or voluntarily stop driving. In her study of elderly drivers in Tucson, Rosenbloom found that participants were more likely to reduce "life-enhancing" trips, such as visits to friends, than "life-maintaining" trips, such as trips to the doctor, when faced with the prospect of not driving. She also found that a significant percentage of older people had made no plans as to how they would get around when they could no longer drive. When that point came for some of her participants, the result was a huge drop in trip making.

Pairing this with the low use or availability of alternative transportation methods, two themes emerge: the need to help older adults drive as long as is safe and practical, and the need to provide and proactively transition older drivers into alternative transportation methods before driving is no longer possible.

As Rosenbloom stated, "We should stop taking the loss of driving as the moment we start getting worried about people." By addressing the problems that can occur before people are forced to stop driving, "not only would we deal with [older drivers'] mobility problems, we would also address the crash and safety problems. If we offered people alternatives, they might very well give up driving sooner or in dangerous situations, and we would also address the problem of people who were self-regulating in ways that really restricted their mobility and lifestyles."

Driver performance

Many of the recent efforts to improve transportation safety for the elderly have targeted older driver behavior, specifically through driver licensing and assessment. This has introduced a specific set of challenges.

One major challenge relates to driver licensing and the notion of chronological versus functional age, according to Waller. Within any given age group, differences exist in functional ability between members of that age group. In driving comparisons, variability in performance exists not only between different drivers of an age group, but in how a single driver may perform at different times.

While older drivers as a group may perform more poorly, basing individual licensing decisions on chronological age would not only be discriminatory but may remove safe drivers from the road while allowing unsafe drivers to continue to drive. As Evans observed, "licensing an older driver does not pose a greater threat to other road users than licensing other drivers."

In addition, current assessment methods have been found to be less than adequate at predicting safety on the road. According to Waller, there are "no known tests or procedures that can readily differentiate between those older drivers who are going to have problems and those who won't." Rosenbloom corroborated this, stating, "There is actually very little relationship between testing or what you find in the laboratory and someone's crash rates."

"Most tests that we have are much more likely to take safe people off the road and make them unsafe pedestrians than they are to identify those few people who are unsafe and need to be drawn out of the road system," said Eberhard.

Another measure targeting the individual driver has been education and training programs. Probably the most well known and widely used is AARP's "55 Alive" driver improvement course for drivers 50 and older. Unfortunately, such programs have not been shown to be effective at improving driver performance. As Wachs observed, "Statistically, there is a very poor correlation between completing the course and increased safety."

Environment and design change

Perhaps because of the limited success in improving transportation by focusing on the individual driver, efforts have also begun targeting design and environment. Existing roadways, cars, public transportation services, and pedestrian facilities were generally not designed with the older person in mind. According to Eberhard, "In traffic engineering, highway design, and the high technology sector, they need to have a better understanding of the characteristics of older people. One size doesn't fit all is an underlying theme that needs to be presented to the engineers."

These characteristics may include slower reaction times, decreased vision and hearing, difficulty with physical movement such as turning one's head, the effects of medication,

or health conditions such as a recent stroke. Wachs also noted that the majority of people with some type of impairment or disability in relation to transportation are elderly.

Improvements in transportation design for the elderly or impaired would often benefit the general population. Examples span multiple modes of transportation and include larger road signs with more reflective lettering, improved edge delineation on the road, longer crosswalk signals, repaired sidewalks, and safe and available public transportation. As observed by Wachs, due to the variety of limitations experienced by the elderly, no "single, simple answer" exists in improving transportation.

Comprehensive strategies

Strategies to improve mobility for older adults have often been divided into those that promote driving as long as possible and those that promote developing and better utilizing alternative modes of transportation. In order to meet the changing needs of older adults as they age as well as the different needs of specific individuals and communities, traffic safety experts are beginning to call for measures that incorporate both strategies and offer multiple safe transportation options to the older adult.

"I think more and more the traffic safety community is recognizing that you can talk about harder tests and stricter rules and stricter licensing, but you also have to be realistic and talk about options for people whose licenses you take away," noted Rosenbloom. Prior to stopping driving, "people are already suffering loss of independence, loss of flexibility, loss of convenience, and we have to do something."

"The norm should be a graduated exiting from the licensed population," stated Waller. "There is a desperate need for community-based programs that will provide transportation for those who can no longer drive. These should be coordinated with licensing programs so that older persons may be transitioned from full-fledged licensure to users of alternative transportation."

Implementing such strategies requires coordination at the community level and beyond, as well as the involvement of multiple stakeholders. According to Waller, "Licensure of older drivers involves legal, political, insurance, medical, public health and safety, and economic dimensions, as well as others. Licensing policy should be based on solid input from a very broad variety of agencies and people."

The U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA) is currently undertaking such an effort, bringing together the input of policy makers, practitioners, older adults, and their caregivers in the creation of a national agenda related to mobility and aging. The agenda, in which Eberhard plays a key role in developing, outlines multiple recommendations that fall into five main areas: improving roads; improving pedestrian facilities; improving automobiles; improving driver assessment, rehabilitation, and regulation; and improving other transportation services.

Another strategy being explored is the development and promotion of higher-density, mixed land use communities in which stores and services are closer to homes, and public transportation and walking are encouraged over automobile use. As Wachs discussed, communities, especially those developed after the 1950s, were often not designed with elderly people in mind, and a new desire for 'neotraditional' communities is emerging.

Whether looking at improving the safety and ease of use of roads, automobiles, community design, public transportation, or pedestrian facilities, improving transportation for older adults will require the efforts of multiple disciplines, groups, and individuals. Health care providers, city planners, senior advocates, media, transportation engineers, government, the automobile industry, and older adults themselves are all potential partners.

"I think the solutions go way beyond not only NHTSA, but DOT in general. This is a major, major social problem and program. And the solutions have to be created jointly with the private sector and with those interest groups that support the aging issues," said Eberhard.

Most importantly, as Eberhard stated, "safety and mobility have to be given equal lead" in designing and improving transportation for the elderly, and multiple options should ideally exist. If older adults are provided with safe, attractive, alternative transportation options in addition to driving, "a lot of them will know in their hearts that they shouldn't be driving and they will take those options," said Rosenbloom.